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OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

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To Entomologists.

Capture of Ægeria Scoliæforme.—I took a specimen of this rare insect on the 13th instant, near Llangollen, and my son Benjamin took another a few minutes afterwards; both were just stretched, having emerged from the pupa within half an hour of their capture: they are male and female. I have these specimens to sell, as well as my Collection of British Lepidoptera, which I will part with in lots, to suit purchasers, at moderate prices.—*Nicholas Cooke; Spring View, Liscard, Cheshire, July* 15, 1862.

On the Opportunities of advancing Science enjoyed by the Mercantile Marine. By C. Collingwood, Esq., M.B., F.L.S., &c.

(Concluded from p. 8098).

Variety of occupation is no less necessary to the sailor than to other men, and any attempt to debar him from so essential an element in a well-regulated mind cannot fail to be productive of evil. Regarded, therefore, from a philanthropic point of view, it is a subject worth inquiring into, whether or not some scheme may be rendered feasible, by means of which this opprobium may be removed. No shipowner will deny that such an amelioration of the seaman's character would be ultimately followed by advantage to his own personal interest; but that advantage is not to be reaped suddenly. Let us hope that it is not too distant in its prospect to offer the inducement to take some trouble for its accomplishment.

The direction which I have here supposed the ship-captain's energies to take, is, however, by no means the only one which may be followed with usefulness and advantage. I have made it prominent because I believe it would be, in a vast number of instances, adopted with most useful results; but men's tastes, doubtless, differ considerably, and the study of Natural History would not commend itself to all. Various subjects of study might be followed out as advantageously as the one I have enlarged upon as a text, and the sciences of physical geography, of geology,—the investigation of meteorological phenomena, of currents, tides, winds,—the study of hydrography, of ethnology, &c., would all receive important accessions from the intelligence which a higher standard of education would develope among our merchant marine. These subjects, however, should all be considered by the committee I have proposed, and a scheme for instruction *on board ship* elaborated with care, which, in the next generation, would yield ample fruit.

Some stimulus, however, would undoubtedly be needed to carry on this work; and the nature of the rewards which should be offered to induce the co-operation of merchant officers should occupy our careful attention and consideration. Among the commanders of the mercantile marine there are many intelligent men who would gladly embrace the opportunity, if it were afforded them, of distinguishing themselves in the walks of Science, and of raising themselves above the level to which they are at present doomed. Whether this stimulus, then, should be of the nature of honorary certificates, pecuniary or honorary rewards, association with scientific bodies already in existence, or of any other kind, would be an important matter for after consideration. I have said enough, however, to bring the matter fairly before you, and in your hands I now leave it, hoping it may not be permitted to fall to the ground, but may be taken up by the influential members of the Association, connected either with Science or with commerce, my own humble co-operation being always at their service.

This paper would be very incomplete without some notice of the important steps which have been taken since it was read to the British Association, on the 7th of September last. On that occasion considerable discussion was elicited, in which the President of the Section (Professor Babington, M.A., F.R.S.), Dr. Lankester, F.R.S., Professor Williamson, F.R.S., Mr. John Lubbock, F.R.S., Mr. J. A. Turner, M.P., Rev. H. H. Higgins, M.A., R. Patterson, F.R.S., and others, took part; all agreeing in their estimate of the importance of the subject, and the great and beneficial results likely to accrue from a well-elaborated plan of operation. Subsequently, in the committee room, the subject was again brought forward by Dr. Lankester, and a committee was appointed to report upon the best mode of carrying out the scheme, of which the writer was requested to take the direction. This committee consists of the following gentlemen:—Dr. Collingwood, M.A., F.L.S., Liverpool, R. Patterson, F.R.S., Belfast, John Lubbock, F.R.S., F.L.S., London, James Aspinall Turner, M.P., Manchester, P. P. Carpenter, Ph. D., Warrington, and the Rev. H. H. Higgins, M.A., Liverpool.

It was further recommended that the paper be printed and circulated among those interested in shipping.

Believing that much might be done by associating merchant officers with existing scientific societies in an honorary manner, the writer, as Secretary to the Literary and Philosophical Society of Liverpool, brought the matter before the members. This society was established in 1812, and is about, during the next month (February), to celebrate its fiftieth anniversary. An addition to the laws was duly passed and confirmed to the effect that the society be "empowered to elect as Associates masters of vessels or others engaged in marine pursuits who may have peculiar facilities for adding to the scientific interest of the Society's proceedings, such Associates to be in every case recommended by the council and to have the same privileges as Honorary Members, their number to be at present limited to twenty-five." This plan, there is little doubt, may be productive of much good, and it is to be hoped will be adopted by other societies. One very large and popular society in London, at least, as the writer is aware, is contemplating a similar step.

The next important advance was as follows. It being considered of the last importance that the sanction and co-operation of shipowners should be obtained, a meeting was convened in the Mayor's parlour, Town-hall, Liverpool, at which some of the most influential shipowners of that port were present, as well as the Chairman and Secretary of the Mercantile Marine Service Association, Mr. T. M. Mackay, of the firm of James Baines and Co. (a gentleman ever ready to co-operate in every scheme for the good of seamen), occupying the chair. The meeting having been informed of the nature and progress of the movement, and the subject having been discussed, the gentlemen present promised their support, both nominal and pecuniary if it were required; and the Mercantile Marine Service Association were requested to draw up some form of certificate as a reward for industry and diligence in any of the departments in which it is anticipated that they can be serviceably employed, this certificate to be signed by persons of influence to be afterwards decided upon. The Association has since then given the matter their attention, and they propose to request the co-operation of such scientific bodies as may wish to avail themselves of the advantages offered in this direction, and to invite them to draw up carefully prepared and lucid statements of the special subjects they may wish to have investigated.

There can be no doubt whatever that it is to the rising generation of seamen that we must chiefly look for the fruits of any scheme of improved education which may be adopted in the present day, and such establishments as the "Conway" training frigate, in the Mersey, are most powerfully useful to that end; still, in order to collect together the elements of scientific industry and laudable ambition which doubtless exist scattered among the present body of merchant officers, it is proposed, as a beginning, to offer a certificate of merit to such commanders as hold the extra certificate of the marine board, or who keep the meteorological log-book supplied by the Observatory, or who show in various other ways a desire to improve their minds and to encourage industry in those under their charge.

Enough has now been said and done to prove that there is a current at work setting in the right direction, and we can only now leave the matter to time, feeling fully assured that it will go on, and bear ultimate fruit both in the advancement of Science, and in the elevation of the character of the merchant seaman.

Abstract of Mr. J. Wolley's Researches in Iceland respecting the Gare-fowl or Great Auk. By ALFRED NEWTON, M.A., F.L.S.*

As, from various causes, some time must pass before I can hope to find leisure to arrange the mass of information respecting the gare-fowl or great auk (*Alca impennis*, Linn.) collected by Mr. John Wolley, and continue the inquiries commenced by him on that subject, so as to publish the details in a fitting manner, several of my friends have urged me not to delay making known more fully than has been done the results of that gentleman's researches when in Iceland, in which researches I had, to some small extent, the pleasure of assisting him. Independently of these recommendations, I am influenced by the consideration that I ought not to withhold from naturalists what is likely to be interesting to some of them; and, still more, that, were I to do so any longer, I should run the risk of losing to my late friend's reputation the credit which, from his labours, of right belongs to it. But I trust it will be understood that, in this paper, I make no pretence of giving anything like a complete history of the bird; for that is a task for which, at the present moment, I am certainly not competent, however much I may hope some day to achieve it. I only wish to place on record certain facts which Mr. Wolley was able to ascertain.

As long ago as the year 1847 Mr. Wolley's attention was directed in an especial manner to the great auk, and during 1851 and 1852 he bestowed much pains in investigating its history from the works of old naturalists and travellers. When I was with him in Lapland, in 1855, we often discussed the chances of its continued existence, finally pledging each other to make a joint expedition to Iceland as soon as it could be conveniently performed. At the same time I have no wish to underrate the impulse given to my friend's enthusiasm, and through him to my own, during his visits to Christiania and Copenhagen the following year, when he first heard of the discoveries of the late Herr Peter Stuvitz and Professor Steenstrup, and besides made the personal acquaintance of the last-mentioned illustrious naturalist, who soon after published so valuable a contribution to this bird's history.*

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* Reprinted from the 'Ibis' of October, 1861, and kindly communicated to me by the author. I have delayed the publication of this admirable paper from a fear of interfering with the excellent periodical in which it was originally published. My correspondents will please read it in connexion with another masterly contribution, on the same subject, reprinted at p. 6883 of the 'Zoologist,' and one which probably suggested to Mr. Newton the idea of compiling this still more exhaustive summary. —*Edward Newman.*

In this paper, therefore, I do not mean to refer much to the bird's appearance in other localities, except in one instance to correct a very prevalent misapprehension. But, on the other hand, I do not claim entire novelty for several of the statements I have to make. Some of them have already found their way into one book or another; sometimes rightly reported, sometimes wrongly. Nor do I profess to be sure that the account I have to give is always the true one. It must be remembered that the results here recorded are the main points of evidence deduced from many authorities, and offered by nearly one hundred living witnesses; and though I do not doubt that the greater number of these latter are persons of eminently truthful habit (for such is the natural characteristic of the Icelander), yet some few there are who may have wilfully told falsehoods. Nor should it be forgotten that it is, humanly speaking, impossible for any two persons, however honestly disposed, to give identically the same version of the same events, though most generally in such cases the variations will be unimportant. Add to this that much of the evidence, though written down at the time by Mr. Wolley (whose note-books I have carefully consulted) in a most painstaking manner, had to pass through an interpreter; and as nearly all of it referred to a period of many years ago, it will not be surprising if some inaccuracies have crept in.

The particular misconception to which I wish to draw especial attention is, that the great auk is, or was, a bird of the *far* North; indeed, of the Polar regions. That such an opinion prevails, one has only to refer to authorities generally received by ornithologists of all countries. Professor Steenstrup, in the paper to which I have alluded, has conclusively shown it to be unfounded, without, however, having been able to trace the error satisfactorily to its source. For myself, I imagine it to have originated in the inadvertence of naturalists, which, in the case of northern localities, leads them to speak of Spitzbergen, Greenland and Labrador as if they were synonymous, or at least interchangeable terms. Regarding it in this light, long before we had heard of Professor Steenstrup's conclusions, Mr. Wolley and I had satisfied ourselves that statements like Temminck's, that the great auk "vit et se trouve habituellement sur les glaces flottantes du pôle arctique, dont il ne s'éloigne qu'accidentellement" (Man. d'Orn. ii. 940), were entirely contrary to fact. There is, I believe, but one reliable instance on record of the gare-fowl* having occurred within the limits of the arctic circle. This is the example said to have been killed on Disco in 1821, and which, after changing hands several times, is now in the University Museum at Copenhagen. The fact has been for the first time recorded in the 'Ibis' (1861, p. 15), and my friend Professor Reinhardt there expresses his belief that "the accounts of other instances, in which the bird is said to have been obtained in Greenland, are hardly to be confided in."†

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* Videnskabelige Meddelser for Aaret 1855. Kjöbenhavn. 1856—1857. Pp. 33—116.

There is, I take it, nothing which should really lead us to infer that the great auk ever visited Spitzbergen.‡ The first English writer to whom I can trace the report is Mr. Selby (Brit. Orn. ii. p. 433); and that distinguished ornithologist has lately most kindly informed me that the making mention of that locality was a mistake, which would have been rectified had another edition of his work been required. As to Norway, the only supposed instance of its occurring there within the arctic circle is that mentioned by Professor Steenstrup (l. c. p. 95, n.), and is doubtful enough. Herr Laurenz Brodtkorb, of Wardöe, in 1855, told Mr. Wolley, repeating the story afterwards in my presence, that in 1848 he shot a large diving bird, of which he did not know the name, on a flat rocky skerry off Reenöe. He felt very certain that it was not a great northern diver (*Colymbus glacialis*); but he assured us that its beak was like a guillemot's (*Uria*), that is, narrow and pointed, and not like a razorbill's (*Alca*), thick and truncated. He was equally sure that there were still a pair or two of his species to be found among the guillemots which breed on this spot. Mr. Wolley, in a letter I received from him about this time (1855), naïvely remarks, "I could not see one; but some of the birds were off their eggs;" and I feel bound to say that, though Herr Brodtkorb has a practical knowledge on Ornithology, I cannot consent to his opinion that the bird he shot was a great auk.*

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* It may seem somewhat pedantic to revive this ancient and almost-forgotten name. In using it I am chiefly influenced by the fact that Mr. Wolley had intended to have employed it.

† I have spoken of the above as a "reliable instance" of an arctic great auk; but I am not sure that even this is free from doubt; for in a letter Professor Reinhardt tells me he has "had some suspicion" whether the reported Disco specimen of 1821 has not been confounded with one asserted by the late lamented Governor Holböll (Kröyer's 'Tidsskrift,' iv. p, 457) to have been obtained at Fiskernæs (South Greenland) in 1815. If this suspicion be correct, the gare-fowl has probably never once occurred within the arctic circle.

‡ Cf. 'Ibis,' 1859, pp. 173, 174.

Were I about to give a full and detailed account of the gare-fowl, I should think it best to divide the evidence collected into two classes —(I.) that which may be considered documentary, and (II.) that which is merely oral; again separating this latter into (1) what is only traditional, and (2) what has actually come to my informant's personal knowledge. In the present case, however, I believe it will be most convenient to take the various matters as far as possible in the order of the time to which they refer. But I must first enter upon a brief description of the localities to which I shall have to allude.

Any person who will take in hand the beautiful map of Iceland, executed by Herr O. N. Olsen from the surveys of the veteran Björn Gunnlaugsson, and published in 1844, under the auspices of the Icelandic Literary Society, will find the name "Geirfuglasker" (gare-fowl skerry) occurring in three different places. The most eastern is situated some thirty miles from the coast, off the island of Papey, and the entrance of Berufjordr, about lat. 64° 35′ N., and long. 26° W. (of Greenwich), and is commonly known to Danish sailors as Hvalsbak (Whale's-back). The most southern is one of the Vestmannaeyjar (Westman Islands), in about lat. 63° 20′ N., and long. 33° 5′ W. The most western is off Cape Reykjanes, in about lat. 63° 40′ N., and long. 35° 50′. W. It was accordingly our first object to ascertain how far these spots now deserved the name they bore. On making all the inquiries we were able on our arrival at Reykjavik, we could obtain no recent information respecting the eastern skerry, of which we had, at starting, entertained most hopes. It appeared also that, of the travellers who in the last century had published accounts of their journeys in Iceland, Olafsen and Olavius only had alluded to this isolated rock as a station for the bird,† though another of them, the Færöese, Mohr, was in 1781 for no less than two months at Djupivogr, on the mainland opposite, engaged in the pursuit of

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* I may add, that near Wardœhuus, between the fortress and the shore of the inlet (Vest-Vaagen), on a raised sea-beach, is a vast bed of bones, chiefly those of birds, but mingled with them a few seals'. We brought away a considerable quantity of specimens; and on some other occasion I may probably give an account of them; but I am sure that they do not include a single fragment which could possibly be a gare-fowl's.

† 'Reise igiennem Island, &c. af Eggert Olafsen.' Soröe, 1772, p. 750. 'Oeconomisk Reyse igiennem de nordvestlige, nordlige, og nordostlige Canter af Island ved Olaus Olavius, &c.' Kjöbenhavn, 1780, ii. p. 547.

Natural History.* We therefore decided we would not attempt the journey thither, at the risk of missing what seemed a better chance, that of finding the object of our search in the neighbourhood of the western locality, where examples of the bird were known to have been last obtained. At the same time we thought it highly desirable that this eastern Geirfuglasker should be visited, and through the intervention of several kind friends we at last met with a gentleman who was willing, for a suitable recompense, to undertake the toilsome, not to say dangerous, expedition. To dismiss this part of the subject at once, I may here say that our envoy, Herr Candidatus-Theologiæ Eiríkur Magnusson, a native of that district, reached Berufjordr in the month of June, and then, taking a boat, proceeded to the island, round which he rowed, quite close enough to satisfy himself that there were no gare-fowls on it; but he was prevented by the unfavourable state of the weather from landing. On his return next month to Reykjavik, he informed us that there were no traditions in that part of the country of the bird ever having been there. Respecting the second Geirfuglasker I have mentioned, that which forms one of the Vestmannaeyjar, we heard on all sides that it was yearly visited by people from the neighbouring islands, and, though we were told that some fifteen years before a young bird had been obtained thence,† it was quite certain that no great auks resorted thither now.

Of the third locality I have now to speak. Lying off Cape Reykjanes, the south-western point of Iceland, is a small chain of volcanic islets, commonly known as the Fuglasker, between which and the shore, notwithstanding that the water is deep, there runs a röst (roost), nearly always violent, and under certain conditions of wind and tide such as no boat can live in. That which is nearest the land, being about thirteen English miles distant, is called, by Icelanders, Eldey (Fire Island), and by the Danish sailors Meel-sækken (the Meal-sack), a name, indeed, well applied; for, seen from one direction at least, its appearance is grotesquely like that of a monstrous half-filled bag of flour, the resemblance, too, being heightened by its prevailing whitish colour. Not very far from Eldey lies a small low rock, over which it seems that the sea sometimes breaks. This is known as Eldeyjardrángr (Eldey's Attendant). Some ten or fifteen miles further out are the remains of the rock formerly known to Icelanders as the Geirfuglasker proper, and to Danes as Ladegaarden (the Barn-building), in former times the most considerable of the chain, but which, after a series of submarine disturbances, beginning on the 6th or 7th of March, 1830, and continuing at intervals for about a twelvemonth, disappeared completely below the surface; so that now no part of it is visible, though it is said that its situation is occasionally revealed by breakers. Further out again, perhaps some six-and-twenty English miles from Reykjanes, rises another tall stack, called, by Icelanders, Geirfugladrángr, and by Dutch sailors Greenadeerhuen (the Grenadier's Cap). All these rocks have been long remarkable for the furious surf which boils round them, except in the very calmest weather. Still more distant is a rock to which the names Eldeyjabodi or Blinde-fuglasker have been applied by Icelanders. This is supposed to have risen from the sea in 1783, the year of the disastrous volcanic eruption in Skaptafellssysla, and soon after to have sunk beneath the waves.*

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* 'Forsög til en Islandsk Naturhistorie, &c.,' ved N. Mohr. Kjöbenhavn, 1786, p. 383.

† Of course it does not follow, even if the story be true, that this bird was *bred* there. Faber states ('Prodromus der islandischen Ornithologie,' Kopenhagen, 1822, p. 49) that he was on the Westman Islands in July and August, 1821, and that a peasant there told him it was twenty years since a great auk (and that the only one of the species he had ever seen) had occurred there. He adds that this bird and its egg, upon which it was taken, remained a long time in a warehouse on one of the islands, but had vanished before his arrival. We may, with Professor Steenstrup (l. c. p. 76, note), infer from this that the gare-fowl, even about the year 1800, was a great rarity in the neighbourhood.

Icelandic records show that, at the beginning of the thirteenth century, various changes took place among the islands off Reykjanes just enumerated. It is stated that a rock, then known as Eldey, disappeared; but another being thrust up close by, the old name was transferred to the new-comer, and has since been borne by it. No notice is taken, in manuscripts of that remote time, of the birds found on these islands; but doubtless they were even then, weather permitting, visited by the inhabitants of the adjoining coast. Indeed, it is asserted in Wilchin's 'Máldagabók' (which dates from 1397, and has not, I believe, been printed), that half the Geirfuglasker belonged to Mary Church in Vogr, now represented by Kyrkjuvogr, and one-fourth to St. Peter's, Kyrkjubolu, of which the church at Utskála is the modern equivalent,— claims which were still looked upon as extant until the submergence of the skerry put an end to them. It has been suggested that the remaining quarter was shared by the church of Stadr in Grindavík; but most likely it was left to reward the bold adventurers who resorted thither. In 1628 twelve men were drowned at the Geirfuglasker, no doubt in a fowling expedition; and in 1639* four large boats (three from Sudrnes, the district between Skagen and Osar, and one from Grindavik) proceeded thither; two of which, those from Stafnes and Marsbudum, were lost at the skerry, while the other two, from Hvalsnes and Stadr, only returned with difficulty. It might have been some such disaster as this that prompted a metrical effusion composed by Séra Hallkiell Stephansson, the clergyman of Hvalsnes, who flourished between 1655 and 1697, of which it is feared only two lines have been preserved to posterity. In these the poet says that he has never trusted himself to Geirfuglasker, as, on account of the surf, boats were broken by the waves there. In 1694 a French vessel was wrecked on the island, but the crew landed in their boats at Midnes.

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* I should have wished to have given, in explanation of the above description, a sketch map of these localities, but I have not the means of doing so accurately. From our own observations, Mr. Wolley and I had reason to doubt whether the bearings of these islands have been correctly laid down either in Gunnlaugsson's map or the Danish Admiralty chart.

Soon after our arrival at Reykjavik we were pleased to learn that the public library there contained a short but beautifully written manuscript account of the Reykjanes Geirfuglasker. For a knowledge of its existence we are indebted to the kindness of Professor Konrad Maurer of Munich, well known as one of the most distinguished Icelandic scholars, and the pleasure of whose company we enjoyed during our voyage to the North, and part of our residence in the capital. The liberality also of the librarian, in allowing us the free use of, and permission to copy, this curious document, must not pass unnoticed here. From the penmanship and the paper on which it is written, it is believed by good judges whom we consulted to be probably a copy. From internal evidence, which need not now be detailed, I venture to express my opinion that the original must have been composed within a few years of 1760. It commences abruptly by giving a somewhat minute description of the rock and its unquestionably volcanic origin; making, however, no reference to its neighbouring islands. It then proceeds to relate the marvellous numbers of birds found upon the rock, adding that the "gare-fowl is there not nearly so much as men suppose;" that the space he occupies "cannot be reckoned at more than a sixteenth part of the skerry," and this only at the two landing-places; "further upwards he does not betake himself, on account of his flightlessness." The writer then goes on to speak of the extreme danger of landing on account of the surf, saying that to go there is to place life and death on an even chance; and after mentioning the report, which is even now current, that a successful expedition to the skerry was equally profitable with a summer's hiring of two hundred fishes' value in the north country, and citing the statement from the Máldága, to which I have before referred, concludes with Sir Hallkiell's couplet mentioned above. Besides this, there are appended two foot-notes. In the first the writer says that in the year 1732, after a lapse of seventy-five years, the skerry was visited, and two huts, three birchen staffs about two ells long, and some withered human bones, were found thereon; adding, by way of comment, that three men had been known to have supported themselves on the rock by eating sun-dried birds, and drinking rotten eggs for half a month before they were taken off. The second note gives a very accurate description of the gare-fowl and its peculiarities, including its eggs, which the writer describes as if he had been an enthusiastic oologist, though he considers it worthy of remark that he has "known Danes give eight to ten fishes* for an empty blown egg," the climax being the apostrophe "Rara avis in terris!" Not the least singular part of the manuscript is an inserted leaf, on which is drawn a very quaint sketch of the skerry. Two boats are seen, anchored with large stones, according to the Icelandic custom still prevalent. In one of these are seated three, and in the other two men, waiting the return of three comrades, who are on the rock, hunting what appear to be gare-fowls, of which upwards of sixty are represented.

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* There is an apparent misprint of "1439" for the above date in Professor Steenstrup's reference to this event (l. c., p. 83, note). The particulars mentioned in the text were supplied to us by Séra S. B. Sivertsen, the clergyman at Utskála, to whom we were indebted for many similar acts of kindness.

Now it has been above stated that in 1732 expeditions to the skerry were resumed after being long discontinued, and, in connexion with this fact it may not be amiss to observe that Anderson, some time Burgomaster of Hamburg, in his account of Iceland,† remarks on the occurrence of many great auks the year before the death of King Frederick IV. of Denmark, which took place in 1730. Hereupon Niels Horrebow, whose principal object was to contradict all Anderson had said, with some reason ridicules* his predecessor's notion of that event being thus heralded, and asserts that no more birds were seen in the year mentioned than previously. But it seems to me improbable that Anderson should have no grounds for his statement, though of course I do not admit the portentous inference, and, if so, it is not unlikely that the renewal of visits to the Geirfuglasker, in 1732, may have been prompted by the report the last-named author mentions of the bird's abundance three years before. On the other hand, I am unable to connect this reported abundance with any other physical phenomenon. I do not find that the period just previous to 1729 was marked by any volcanic outbursts or the presence of any extraordinary amount of floating ice, either of which events might be supposed to affect the bird's movements.

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* I much regret not being able to give, in explanation of this and the passage mentioned a few lines above, the worth of a *fish* at the period when I suppose this manuscript to have been written. It was, and in the secluded parts of the country still is, the unit of the Icelandic currency, but of course a unit of very variable value.

† 'Herrn Johann Anderson, &c. Nachrichten von Island, Grönland und der Strasse Davis, &c.' Frankfurt u. Leipzig, 1747, p. 52.

In 1755, Eggert Olafsen and Bjarne Povelsen, to whose accurate account of Iceland I have already alluded, explored the Gulbringu Sysla, which comprehends the south-western corner of the island, and they passed the following winter at Videy (*op. cit.* pp. 848, 849), during which time it is mentioned that they saw both the bird and its egg, which had been obtained from the Reykjanes skerry by some Sudnes boats (p. 983). A few years later, Mohr, in his work, which I have also before mentioned, says (*op. cit.* p. 28), that he was assured by the peasants that the bird was blind when on land, a notion not entertained by the Færöese, but which still prevails in Iceland. He was also told that in former days people had filled their boats with its eggs from the Reykjanes station, and though he does not expressly say so, I think we may infer from these authorities that about the middle or towards the end of the last century this Geirfuglasker was constantly visited by fowling expeditions. Local tradition makes the same assertion, assigning the leadership of these adventurous exploits to one Svenbjorn Egilsson, born in 1700, and Hannes Erlendsson, born in 1705; but later their place was taken by one Hreidar Jónsson, whom people now living can remember as a blind pauper some eighty years of age, with a long beard. This hero was born, as it appears, in 1719, and used to go yearly to the skerry on behalf of Kort Jónsson, a rich farmer at Kyrkjubol, who flourished between 1710 and 1760. Hreidar is even reported to have made during one summer three expeditions, in which he acted as foreman. After his time the practice seems to have died out; but one witness informed us that, to the best of his recollection, people had made voyages between 1784 and 1800.

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* 'Tilforladelige Efterretninger om Island, &c.' Kjöbenhavn, 1752, pp. 175, 176.

Faber, who was in Iceland in 1821, and then attempted to reach the skerry (of which exploit I shall presently speak), tells us (*op. cit.* p. 48) that for a long period these perilous expeditions had been relinquished —probably because the results from repeated performance fell short of the risk incurred. But the birds were not wholly banished, for Thorwalder Oddsson, born about 1793, told us that when he was a boy, some nine or eleven years old, he found one on the shore at Selvogr, and a few days later, probably between 1808 and 1810, two were killed at Hellirsknipa, between Skagen and Keblavik. Erlendur Gudmundsson, an old man with a most retentive memory, showed us the gun with which he shot one of them. He was in a boat with his brother-in-law, A'sgrimur Sæmonsson, who died in 1847, and the occurrence happened in the month of September. The gare-fowls were sitting on a rock: A'sgrimur fired first, and killed one; the other took to the water and was shot by Erlendur. They each ate their respective birds, and very good meat they found them. A third is said to have been shot a few years later, near the same spot, by one Jacob Jonsson, now dead; this also was eaten.

The cause, however, of the most wholesale destruction of great auks in modern times must be sought elsewhere. In 1807 hostilities commenced between England and Denmark. The following year, the 'Salamine,' a privateer of twenty-two guns, under British colours, and commanded by one John Gilpin, but probably owned by Baron Hompesch, who was also on board, appeared at Thorshavn, the capital of the Færöes, which her crew almost entirely plundered, ending by carrying off a certain Peter Hansen, whom they forced to pilot them to Iceland. Arrived at Reykjavik, July 24th, 1808, they repeated their outrages, and before they finally quitted the island paid a visit to the Geirfuglasker, where they remained a whole day, killing many birds and treading down their eggs and young. After this they sailed away, August 8th, and deposited Hansen again in the Færöes. On February 7th, 1810, at the solicitation of Sir Joseph Banks, an order in council was set forth by the British Government, exempting the northern possessions of the Danish Crown from any molestation on the part of English cruisers, and permitting the inhabitants of the same to trade with either London or Leith, though not with the mother country. The Court of Copenhagen met this act of common humanity by issuing decrees, strictly prohibiting, on pain of death, all intercourse with the British.* The consequence was that the unfortunate Færöese were nearly reduced to a state of starvation, and in 1813, as a last resource, their Governor, Major Löbner, determined to send a vessel to Iceland to obtain some necessaries. This vessel, the schooner "Færöe," of twelve guns, he placed in charge of Hansen, as one already acquainted with the coast. When they came off Cape Reykjanes they were becalmed, and a boat being lowered, a party went off to one of the skerries, on which, as their captain expected, they found abundance of birds, and among them many great auks. They killed all they could, and loading the boat quite full, yet left many dead ones on the rock, intending to return for them; but the wind springing up, Hansen made sail for Reykjavik, where, about a week later, they arrived on the 29th of July, having then on board among their victims no less than twenty-four gare-fowls, besides others which were already salted down. One of these birds is said to have been given to the Bishop (Vidalin), and by him sent to a friend in England. Mr. Wolley conversed with one of the two survivors of this voyage, Daniel Joensen, in 1849,* and on July 25th, 1858, through the kind attention of Herr Sysselmand H. Müller, we had an interview with the other, a clear-headed old man, Paul Medjord by name. The accounts of these two witnesses differ from each other in no material point, but it does not seem quite certain whether the rock on which they landed was the Geirfugladrángr or the Geirfuglasker proper. Many of the above particulars, including the exact dates, which I believe have never before been published, were most obligingly furnished us from the official records by Herr Dahlerup, the Governor of the Færöes, and Herr V. Finsen, the By-fogden of Reykjavik; but Faber, in 1822, briefly mentioned this massacre, and in 1839 the late Etatsraad Reinhardt† added some further information, which notices have been copied into various other works.

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* 'Journal of a Tour in Iceland in the Summer of 1809.' By William Jackson Hooker, F.L.S., &c., 2nd ed., London, 1813, vol. ii. pp. 57 *et seq.*

In 1814, according to Faber (*loc. cit.*), seven great auks were killed on a little skerry at Látrabjarg, on the north shore of Breidifjordr. I do not know any other reported instance of its occurrence there or elsewhere in Iceland so far to the north. Olafsen (*op. cit.* p. 562) gives a lengthened description of the locality and the birds which frequent it, but makes no mention of Alca impennis. The only notice of the place I can find besides is in Mr. Metcalfe's amusing little book just published.* This gentleman tells a story to show that spiteful spirits dwell in some part of the cliff, but does not suggest that they are the ghosts of departed gare-fowls.

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* 'Contributions to Ornithology,' 1850, [edited] by Sir William Jardine, Bart, &c. Edinburgh, 1850, p. 116.

† Kröyer's 'Naturhistorisk Tidsskrift,' i. p. 533.

Faber further informs us (*op. cit.* p. 48) that on the 25th of June, 1821, he started on an excursion to the Reykjanes skerries. He was accompanied by a Danish merchant, a Swedish Count, and the latter's servant.† Of the Icelanders who were on board the vessel, the "Villingar, a cutter belonging to one Jón Danielsson, only one survives. He, by name Olafr Pálsson, gave us an account of the voyage, closely agreeing with Faber's, which he had never seen. They came first to the Geirfuglasker, and sailed between it and the "drángr," where the Count, whose name I have been unable to ascertain, landed and gathered some sea-weed. Then the weather became fair, and they proceeded to the skerry itself, where they arrived in the evening. Faber remained on board, but the Count again landed, and presently fell into the water. They picked him up, and his servant shot a good many gannets (*Sula bassana*). Later in the evening they returned, and some of them went on shore, but could find no way up. Jón Danielsson declared he was ready to stop a week; the Count, however, seemed to have had enough of it, and "Fugle Faber thought as the Count did." They were out two days and two nights at the rocks. They did not go near Eldey, saw no gare-fowls, and their opinion was that they must have been all killed by the French sailors, as they had heard a vessel of that nation had been seen there two summers before.‡ Jón Jónsson, son of the owner of the "Villingar," then a lad about twelve years old, who assisted in putting the foreigners on board her, and had often heard his father and elder brother speak of the expedition, also corroborated Olafr Pálsson's narrative.

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* 'The Oxonian in Iceland, &c.' By the Rev. Frederick Metcalfe, M.A., &c. London, 1861, p. 260.

† I am not so fortunate as to possess a copy of Faber's other work, 'Ueber das Leben der hochnordischen Vögel,' Leipzig, 1825, nor have I seen the paper in the 'Isis' for 1827 (p. 633), in the latter of which I am informed he gives the fullest particulars of his expedition; I therefore have to content myself with the translated extracts therefrom contained in a paper "On the Great Auk," communicated May 19, 1850, by Dr. Edward Charlton, to the Tyneside Naturalists' Field Club, and published in their 'Transactions,' vol. iv. pp. 113 *et seq.*

‡ It does not seem to me at all impossible that there should be some truth in this report. Mr. Scales has kindly informed me that he obtained the fine great auk's egg now in his possession from M. Dufresne, who had one or two others in his collection, in 1816 or 1817. It was said to have come from the Orkneys, which, however, I think is extremely unlikely.

It is clear, however, that at this very time there were great auks in the neighbourhood, for, a few days later in the season, two birds were seen sitting on a low rock, close to the place where I have before mentioned that two or three were shot, and were killed with a sprit or gaff by another Jón Jónsson (now dead) and his son Sigurdr, who related the circumstance to us. This witness is certain that it was about the beginning of July of the same year as that of Faber's visit. They sold the skins, which our informant himself took off, commencing the operation by making a hole transversely across between the legs, as he would do in the case of a quadruped. They afterwards ate the bodies and sold the skins to the A'sgrimur before mentioned.* The occurrence of so many examples of this bird nearly in the same locality may perhaps be accounted for by the fact that the tide runs in very strongly round Skagen, and sets along Holmsberg.† The auks, after fishing on that side of the promontory, may have found themselves unable to make head against the current, and so have betaken themselves to the shore.

I may here observe that we failed to gather any further information respecting a bird said by Dr. Kjærbölling (Danmark's Fugle, p. 415) to have been killed in 1818 on a place in South Iceland, where many had been observed; but Etatsraad Reinhardt records (*loc. cit.*) the death of one in 1828, and I think the Doctor is altogether mistaken in the assertion that "Apothecary Mechlenburg, of Flensborg, possesses a pair which were killed on the gare-fowl skerries in 1829, where they were courageously defending their two eggs." But of this last supposed capture I shall say more presently.

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* The Icelandic skins of foxes (*Canis lagopus*) are all flayed in the way above described. I cannot help suggesting that these may have been the two great auks' skins stated by the late Etatsraad Reinhardt (*loc. cit.*) as being received in 1823 from Oerebakke (Eyrarbakki), though they were said to have been killed there in that year by a boy with a stick. Faber, when in the district, lived for some weeks in A'sgrimur's house, who was probably thus aware that he wanted them. On leaving it he went in the direction of Eyrarbakki; on July 9th he was five miles to the east of Keblavik, and in the end of that month and in the next was on the Westman Islands (Prodr. pp. 38 and 49). Some persons we saw declared that he had three specimens, but he himself says somewhere (I think in the 'Isis') that he never procured any of this species. Possibly, therefore, they were sent after him to Eyrarbakki, and thence some two years afterwards to the Museum at Copenhagen.

† We obtained information respecting the tides from a manuscript account of Gulbringe-sysla, written about 1784, by the then Land-foged Skule Magnusen, which was kindly lent to Mr. Wolley, and the account was confirmed by the statements made to us by fishermen.

We now come to the most modern period in the great auk's history. In 1830, as I have before said, the Geirfuglasker off Reykjanes disappeared beneath the waves. Whatever motive prompted him, it is certain that in that year one Brandur Gudmundsson, an inhabitant of Kyrkjuvogr, who died in 1845, bethought him of making an expedition to Eldey, or the Mealsack, the high rock which stands between the sunken island and the Cape. All the dwellers in the district concur in saying that before that time no rumour of the birds breeding there had ever reached them. It seems that in that year he led two voyages to this new-found locality, in one of which twelve or thirteen, and in the other eight examples were captured. Six of these were purchased by Adnor Gunnarsson, and as many more by Holgeir Jacobæus, two merchants living at Keblavik, while the remainder are unaccounted for. On the first occasion the weather was fine, and all the party but two landed. Besides the gare-fowls they took a great many other birds, razorbills and guillemots. The second time the weather was bad, and only four men went up. They had to come away very quickly. These and many other particulars of interest which I could give, were I not afraid of extending these notes to an unreasonable length, were related to us by two men (brothers), Stephan and Jón Gunnarsson, the only survivors of those who were present. The following year another voyage was undertaken by the same foreman, and whether that the birds were more numerous, or that their persecutors had learned experience (for on the previous occasions several had escaped), twenty-four were captured, of which one was brought off alive, and so taken to Keblavik, where, however, it was killed, or at least died. These two dozen gare-fowls were all skinned by one person, a woman, Sigrida Thorlaksdotter, who told us that she performed the operation in her accustomed way, opening them under the right wing, and stuffing the skins with fine hay. The same merchants as before, with the addition of Dethlef Thomsen, shared them. It is not very easy for me to reconcile the various conflicting statements about the captures of the next two years, but in 1833 thirteen birds were probably taken, and in 1834 nine birds, with eight eggs, seem to have been obtained, of which one bird was given to the Crown Prince (the present King of Denmark), who then happened to be in Iceland, and subsequently passed into the possession of the late Herr Mechlenburg. The remaining eight were purchased by Herr Thomsen, just mentioned, whose son most obligingly showed Mr. Wolley an account of the transaction in his father's books. They were skinned by Madame Thomsen and her sister, Jomfrue A. C. Lewer, who informed us that they were opened under the wing, and the skins stuffed with hay, the bones being wrapped round with hemp. The eggs were quite fresh, and were blown by the two ladies. All these specimens were disposed of to Herr De Liagre, a dealer at Hamburg, and, I may add, I think that one of the eggs now in my possession belonged to this lot. In August, 1840 or 1841, three skins, as many eggs, and the body of a bird in spirit, were bought of Factor Chr. Thaæ, now living at Copenhagen, by Herr S. Jacobsen, who told us that he parted with them either to Herr Selning, a naturalist at Hamburg, or to Mr. Jamrach, the well-known dealer. Two of these birds, or else two more some other year, were obtained by one Stephan Sveinsson, of Kalmanstjorn, whom the good people of Kyrkjuvogr seem to look upon as a kind of poacher on what they consider their rightful domain. Certain it is that on one occasion Herr Thaæ bought two birds of this Stephan, as the latter informed us, but the exact date is not so clear.

The last gare-fowls known to have occurred in Iceland were two in number, caught and killed in 1844 by a party, of which our excellent host at Kyrkjuvogr, Vilhjálmur Hákonarsson, was the leader. They were bought, singularly enough, by Herr Christian Hansen, son of that Hansen I have before alluded to as having been (though, in the first instance, against his will) so dread a scourge to the race. From him they passed to Herr Müller, then the apothecary at Reykjavik, who, previously to having them skinned, prevailed upon M. Vivien (a French artist) to paint a picture of one of the dead birds, which picture now hangs in the house of his successor, Herr Randrup, the present apothecary in the capital of Iceland. As many persons may regard these birds as the latest survivors of their species, I may perhaps be excused for relating at some length the particulars of their capture, the more so as this will serve to explain the manner followed on former occasions.

The party consisted of fourteen men: two of these are dead, but with all the remaining twelve we conversed. They were commanded, as I have just said, by Vilhjálmur, and started in an eight-oared boat from Kyrkjuvogr, one evening between the 2nd and 5th of June, 1844. The next morning early they arrived off Eldey. In form the island is a precipitous stack, perpendicular nearly all round. The most lofty part has been variously estimated to be from fifty to seventy fathoms in height; but on the opposite side a shelf (generally known as the "Underland") slopes up from the sea to a considerable elevation, until it is terminated abruptly by the steep cliff of the higher portion. At the foot of this inclined plane is the only landing-place; and further up, out of the reach of the waves, is the spot where the gare-fowls had their home. In this expedition but three men ascended: Jón Brandsson, a son of the former leader, who had several times before visited the rock, with Sigurdr Islefsson and Ketil Ketilsson. A fourth, who was called upon to assist, refused, so dangerous did the landing seem. As the men I have named clambered up, they saw two gare-fowls sitting among the numberless other rock-birds (*Uria troile* and *Alca torda*), and at once gave chase. The gare-fowls showed not the slightest disposition to repel the invaders, but immediately ran along under the high cliff, their heads erect, their little wings somewhat extended. They uttered no cry of alarm, and moved, with their short steps, about as quickly as a man could walk. Jón with outstretched arms drove one into a corner, where he soon had it fast. Sigurdr and Ketil pursued the second, and the former seized it close to the edge of the rock, here risen to a precipice some fathoms high, the water being directly below it. Ketil then returned to the sloping shelf whence the birds had started, and saw an egg lying on the lava slab, which he knew to be a gare-fowl's. He took it up, but finding it was broken, put it down again. Whether there was not also another egg is uncertain. All this took place in much less time than it takes to tell it. They hurried down again, for the wind was rising. The birds were strangled and cast into the boat, and the two younger men followed. Old Jón, however, hesitated about getting in, until his foreman threatened to lay hold of him with the boat-hook; at last a rope was thrown to him, and he was pulled in through the surf. It was "such Satan's weather," they said, but once clear of the breakers they were all right, and reached home in safety. Next day Vilhjálmur started with the birds for Reykjavik to take them to Herr Carl F. Siemsen, at whose instance this particular expedition had been undertaken; but on the way he met Hansen, to whom he sold them for eighty Rigsbank-dollars (about £9). According to Professor Steenstrup (*op. cit.* p. 78), the bodies are now preserved in spirit in the Museum of the University of Copenhagen, but respecting the ultimate fate of the skins I am not quite sure.

Several other expeditions besides those to which I have here adverted no doubt took place between the years 1830 and 1844, but I cannot at present give either the dates or the results. Herr Siemsen informed Mr. Wolley that twenty-one birds and nine eggs had passed through his hands; but this account contains other details, which are certainly inaccurate. If all the stories we received can be credited, the whole number would reach eighty-seven. I should imagine sixty to be about the real number. Of these a large portion went to the Royal Museum at Copenhagen, as is stated by the late Etatsraad Reinhardt (*loc. cit.*); a good many more passed into the hands of Herr Brandt, whose son informed Mr. Wolley that, in or since the year 1835, his father had had nine eggs, and I suppose birds to match. Two eggs were also purchased by a certain Snorri Sæmonasson then living at Keblavik, but what became of them I do not know. I have also learnt, on undoubted authority, that the late Herr Mechlenburg has had in all eight birds and three eggs.* From this naturalist, in April, 1844, Mr. John Hancock, by the intervention of Mr. John Sewell, of Newcastle, received a bird and an egg, which are now in his collection, with the information that they were taken together with another bird and another egg, a year or two previously, on an island "at the *north-east* side of Iceland." A wrong locality was probably furnished on purpose to mislead Herr Mechlenburg; but the fact of his never having had more than three eggs, of which two came into his possession in, or shortly before, the year 1844, entirely disposes of Dr. Kjærbölling's assertion to which I have before alluded.† Thus it is pretty evident that most of the specimens of the great auk and its eggs which now exist in collections were obtained from Eldey between the years 1830 and 1844.‡

From what has been already stated, it will be seen how great Mr. Wolley's industry in collecting information was; yet I must add a few more words. In former days, the gare-fowls were, in summer time, so constantly observed in the sea by the fishermen, that their appearance was thought but little of. The people from Kyrkjuvogr and Sudrnes used to begin to see them when they arrived off Hafnaberg, and from thence to Reykjanes röst. We were told by many people that they swam with their heads much lifted up, but their necks drawn in; they never tried to flap along the water, but dived as soon as alarmed. On the rocks they sat more upright than either guillemots or razorbills, and their station was further removed from the sea. They were easily frightened by noise, but not by what they saw. They sometimes uttered a few low croaks. They have never been known to defend their eggs, but would bite fiercely if they had the chance when caught. They walk or run with little, short steps, and go straight like a man. One has been known to drop down some two fathoms off the rock into the water. Finally, I may add that the colour of the inside of their mouths is said to have been yellow, as in the allied species.

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* Herr Pastor W. Pässler has some remarks on these in the 'Journal für Ornithologie,' 1860, p. 59.

† The additions which, in the last edition of his work, Mr. Yarrell made to his account of this bird (B. B. 3rd ed. vol. iii. pp. 482-3), are copied from Mr. Lloyd's 'Scandinavian Adventures' (ii. pp. 496-7), having been originally taken from Dr. Kjærbölling's book, and are very inaccurate.

‡ Lists of these, which are in the main correct, though I know of a few that are omitted, have lately appeared in the 'Zoologist' for the present year (Zool. 7353, 7386), and almost simultaneously in the 'Field' newspaper (Nos. 423 and 424, pp. 93, 114. Further remarks on them will be found in the former journal (Zool. 7387, 7438).

In 1846 Eldey was visited by Vilhjálmur and a party, and no garefowls could be found. In 1858 Mr. Wolley and I remained at Kyrkjuvogr, with two short intervals, from May 21st to July 14th. Our chief object was to reach not only Eldey, but the still more distant Geirfugladrángr, on which probably no man has set foot since the Swedish Count, in 1821, with so much difficulty reached it. Boats and men were engaged, and stores for the trip laid in; but not a single opportunity occurred when a landing would have been practicable. I may say that it was with heavy hearts that we witnessed the season wearing away without giving us the wished-for chance. The following summer was equally tempestuous, and no voyage could be attempted. Last year (1860), on the 13th of June, Vilhjálmur successfully landed on Eldey, but he found no trace of a greak auk, and the weather prevented his proceeding to the outer island. Later in the year a report reached Copenhagen, which was subsequently published in the newspaper 'Flyveposten' (No. 273), to the effect that two eggs of this bird had been taken on one of the skerries and sold in England for fabulous prices. Through the kind interest of several friends, I think I am in a position to assert that the statement is utterly false. The last accounts I have received from Iceland, under date of June 20th, in the present year (1861), make no mention of any expedition this summer. I am not very sanguine of a successful result, but I trust yet to be the means of ascertaining whether, at the sinking of the true Geirfuglasker, some of the colony, deprived of their wonted haunt, may not have shifted their quarters to the Geirfugladrángr, as others, we presume, did to Eldey, and to this end I have taken, and shall continue to take, the necessary steps.

But to sum up the account of Mr. Wolley's personal researches. The very day after our arrival at Kyrkjuvogr he picked up from a heap of blown sand two or three birds' wing-bones (*humeri*).* He was at once struck with their likeness to the figure illustrating Prof. Steenstrup's paper,—that valuable paper to which I first of all referred, and which has been constantly at my side while compiling this abstract of Mr. Wolley's notes. A little comparison, not only with the engraving, but with the corresponding bones in other species, a good supply of which there was no difficulty in procuring, soon showed that he had not been mistaken, and accordingly bone-seeking became one of our recognised occupations. Yet I cannot say that even here we were very successful; curiously enough where the chances seemed the best we never found anything. Thus the old Geirfuglasker having formerly been shared by the churches of Kyrkjubol and Mariu-Kyrkja-i-Vogi, we naturally thought that the "Kjökken-möddinger" (Kitchen-middens) at those places would be likely to yield the best supply. Yet at what we were told was the site of the latter not a vestige of a bone could be found. The ground was covered everywhere with great stones—the little soil there was between them seeming as if it had drifted into its present position, while the sea may have completely washed away the rubbish-heaps, if houses ever stood there. At the former place,—Gammall Kyrkjubol,—though there was a very large grass-grown mound entirely composed of ancient refuse, and into which we made a deep excavation, we did not recover a single fragment of a great auk—scarcely, I think, of any bird—from it. Nor was our luck much better at Stafnes, where we dug down through a large heap, coming upon fishes' bones in great abundance, but little of interest excepting a stratum of broken egg-shells, apparently those of guillemots and razorbills, with perhaps a few eider ducks', though I have not yet examined them very closely. It was remarkable that such of the fragments as had any markings retain them still, after so long a burial, quite as brightly as specimens I have often seen in cabinets, when the collector has not been careful to exclude air and light. At Kyrkjuvogr we were more fortunate; in the wall of the church-yard we found two or three great auks' bones sticking in the turf, which is used instead of mortar to keep the stones in their places. On inquiry the turf was found to have been cut from a small hillock close by. This we pretty thoroughly searched, and amongst a vast number of the bones of other Alcidæ there were several of the large species.

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* They were from the side of a channel blown out by the wind from a heap formerly drifted there, such as in the eastern counties of England would be called a "Sand-gall."

But our most profitable digging was at Bæjasker. Mr. Wolley one day, as he was riding along, called out to me that he saw two garefowls' bones lying on the ground. On getting off his horse he found them to be the distal ends of the humeri, and apparently a pair.

Going to the spot I picked up a radius, also of a gare-fowl, the first we had found anywhere. We carefully examined the locality on two other occasions, and found remains which must have belonged to at least eight individual birds. Many of them bore marks of the knife, and nearly all were in good preservation. They were chiefly lying under stones, which seemed once to have formed an old boundary-wall, and had probably been contained in the turf from some still more ancient rubbish-heap with which the wall had been built up. Just on this spot the sea appears to have encroached, and in this manner laid bare the two bones whose discovery led to the detection of the rest. Among the specimens we collected there are several in which certain differences, probably the result of age or sex, are observable. I do not intend to describe them now. I will merely remark that the great auk is rendered incapable of flight by the modification of the extremities only of its wings. While its humerus is in proportion with the bulk of the body, and fully twice the length that it is in the razorbill, the ulna, radius and metacarpus are nearly the same length in both species, only much thickened in the gare-fowl.*

It will be gathered from what has been above said that I think there is yet a chance of the great auk still existing in Iceland. At all events until it is proved that he is not to be found on the Geirfugladrángr, I think he must not be despaired of; but I know of no other locality where he is likely to be. The numerous islets in the Breida-fjordr which have been suggested as affording him possibly a last station, are, I believe, visited every year by people from the neighbourhood. Those who imagine he may be on the opposite coast of Greenland are, I am sure, doomed to disappointment. That shore is almost always beset with ice, and, dive admirably as the bird may, I have yet to learn that he can remain under water as long as a seal or a walrus. His then would be a poor sort of existence among closely-packed floes and crashing mountains of ice. Along the coast of Labrador nothing has been lately heard of him that I know of, and yet, if I am rightly informed, it is pretty generally every year visited by fishermen of various nations. The formerly known breeding-places in the Gulf of

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* Mr. Edward Blyth gives a few interesting particulars about some bones of Alca impennis in the 'Proceedings of the Zoological Society' for 1837 (p. 122). I think it is likely enough that the specimens he examined were extracted from the skins prepared in 1834 by Jomfrue Lewer, which I have mentioned. At all events, that lady seems to have left more of the bones in the skins she prepared than is the custom with other performers in Iceland.

St. Lawrence and off the coast of Newfoundland are ascertained to be abandoned, and no wonder when we think of the annual massacres which used to be committed there.* Yet there may be still "some happier island in the watery waste" to which the penguins of the western seas may have escaped; but then, we may rely upon it, there is left a scanty remnant only.

I have been informed by my good friend Colonel Drummond-Hay, that in December, 1852, in passing over the tail of the Newfoundland banks, he saw what he fully believes to have been a great auk. At first he thought it was a northern diver; but he could see the large bill and white patches, which left no doubt on his mind. The bird dived within thirty or forty yards of the steamer. The same gentleman also has sent me a letter received by him in 1854 from the late Mr. J. MacGregor, of St. John's, Newfoundland, in which he encloses a succinct account of the former wanton destruction of these birds by the fishermen,—the heaps of bones and the "pounds" now to be seen on some of their old breeding-places,—and states that in the preceding year (1853) a dead one was picked up in Trinity Bay. My inquiries about this specimen have not yet resulted in obtaining any further information respecting it.†

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* I am under the necessity of dissenting from the opinion expressed by Professor Owen, in a lecture delivered at the Royal Institution, April 12, 1859, and repeated in his article on 'Palæontology,' as republished in a separate form from the 'Encyclopædia Britannica' (p. 400). To the destruction which the great auk has experienced at the hands of man, must, I am confident, its gradually increasing scarcity be attributed. Granting that it does require very peculiar breeding-places to be fit and favourable for it, we only know of the disappearance of one such in the whole extent of its range, which in comparatively modern times reached from Cape Cod to Papa Westra, while on every other known breeding-place it has, from the earliest date, been the especial object of search.

† While on the subject of the bird's occurrence in this part of the world, I wish to remark on Mr. Cassin's statement in Professor Baird's 'Birds of America' (p. 901), touching the great auk "figured by Mr. Audubon, and *obtained by him on the banks of Newfoundland*," &c. Now in 1857 I was assured by Mr. Bell, the well-known taxidermist at New York, who knew Mr. Audubon intimately, that he never possessed but one specimen of this bird; and if we turn to Professor MacGillivray's 'History of British Birds' (vol. v. p. 359), we find him saying that he never saw but two examples of the species, one in the British Museum, and "the other belonging to Mr. Audubon, and *procured by him in London*." I have also to set right a mistake made on this side of the water. In their Catalogue of Norfolk and Suffolk Birds, printed in the 'Linnean Transactions' (xv. p. 61), Messrs. Shepherd and Whitear say, they had been told by Sir William Hooker that a great auk had been "killed near Southwold" in the latter county. That eminent botanist, however, has most kindly informed me that not only has he no recollection of any such occurrence, but, having taken some

I am well aware that nothing but the extraordinary interest that attaches to this bird warrants me in occupying so much space. It must be remembered that it is not merely a matter with which ornithologists only are concerned, but is one of far higher and more general importance. "A consideration of such instances of modern partial or total extinctions," says Professor Owen (*loc. cit.*), in reference to this very case, "may best throw light on, and suggest the truest notions of, the causes of ancient extinctions." If this be not sufficient excuse for me, I must urge the great difficulty I have had in condensing the numerous particulars of information which Mr. Wolley's labours have placed at my disposal. It would have been far easier to have been more diffuse. In Iceland all, with but one exception, were eager to tell us all they knew, and that in the most careful manner. I have already mentioned several persons from whom we obtained valuable intelligence, and, unjust as it may appear to the rest, I must forbear from naming more. The chief authorities both in church and state afforded us every facility, and all orders and degrees of men and women followed their example. From the Governor, surrounded by the comforts of modern civilization, through every grade to the unhappy leper, dwelling, as his ancestors may have done centuries ago, amid filth and scarcity, we received an amount of attention, of which it is difficult to express the full value without seeming guilty of exaggeration. Alas! that it is left to me only to make this statement! To all those concerned, then, I have to return our acknowledgments, and to no one more than to our honest and intelligent guide and interpreter Geir Zoega, of Reykjavik, who for more than two months was our constant and willing attendant.

Whether the gare-fowl be already extirpated or still existing in some unknown spot, it is clear that its extinction, if not already accomplished, must speedily follow on its rediscovery. I have therefore to beseech all who may be connected with the matter to do their utmost that such rediscovery should be turned to the best account. If in this

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trouble to inquire about it, he is satisfied that the statement originated in error. I must add further, that the reported instance of a bird taken near Marlow, in Buckinghamshire, on the estate of Sir William Clayton, first published, I think, by Dr. Fleming (Brit. Anim. p. 130), on Mr. Bullock's authority, seems to me very unlikely. On the other hand, I may mention that Sir William Milner tells me that within the last few years he has become possessed of a fine great auk, which he has reason to believe was killed in the Hebrides. This bird, I am informed, was found to have been stuffed with turf.

point we neglect our opportunities, future naturalists will justly reproach us. The mere possession of a few skins or eggs, more or less, is as nothing. Our Science demands something else—that we shall transmit to posterity a less perishable inheritance. I have to urge, in no spirit of partiality, but purely in the cause of knowledge, the claims of our own country in this event. Our metropolis possesses the best-stocked vivarium in the world. An artist residing among us is unquestionably the most skilful animal draughtsman of this or any other period. By common consent the greatest comparative anatomist of the day is the naturalist who superintends the nation's zoological collection. Surely no more fitting repository for the very last of the great auks could be found than the Gardens of the Zoological Society of London, where living they would be immortalized by Mr. Wolf's pencil, and dead be embalmed in a memoir from Professor Owen's pen.

ALLRED NEWTON.

Elvedon, August 8, 1861.

NOTICES OF NEW BOOKS.

'*Memoir of the Rev. John Stevens Henslow, M.A., F.L.S.*' By the Rev. LEONARD JENYNS, M.A., F.L.S., &c. London: Van Voorst. 1862. 278 pp., post 8vo, with photograph portrait.

PROFESSOR HENSLOW was one of those men whose unostentatious zeal in the cause of Science, whose kindness of disposition and whose willingness to assist the learner, have won for him golden opinions from all who enjoyed the advantage of his society. A distinguishing characteristic of this humble-minded man was his entire indifference to scientific renown: with the single exception of Botany, he neither aimed at nor attained a profound knowledge of the Natural-History sciences; but he acquired a very general acquaintance with all of them, and imparted his knowledge with a freedom and a grace that endeared him to every learner. We could have wished the office of biographer of Henslow had fallen into other hands; to the writer of this notice, and we think to the world of naturalists generally, it would have been far more acceptable to have had a *memoir of Henslow* from one who could have understood and appreciated the *mind of Henslow*, than from one who regards as merit his having caught a Camberwell beauty in his own garden, and a snail which bears the name of Henslowiana,—horrid and barbarous appellation: the first was an accident; the second a calamity. Few biographers seem aware that they present us in their works a double portraiture: the first and more striking photograph is of themselves; the second, less carefully executed, is of the subject of their researches. The little volume before us is an apt illustration of this: the capture of a butterfly, or the complimentary naming of a snail, together with similar trivialities, impress the biographer with their importance, but would have been utterly unheeded at the moment, and in a few days totally forgotten, by the individual in whose praise they are now recorded. How many instances of a similar kind occur in Boswell's 'Life of Johnson;' and yet one cannot regret, or regard as useless, the truthful picture that is thus preserved of both.

The chief study of Henslow's earlier years appears to have been Mineralogy, and his proficiency in this science was sufficient to procure for him, in 1823, a Professorship in the University of Cambridge; but two years afterwards a more congenial chair became vacant, that of Botany. For many years he had regarded plants with a very loving eye; he longed for greater opportunities of studying them, and he had learned that in order to teach, it is indispensable to learn: in seeking the botanical chair he was opposed by William Kirby, who in early years had made plants a leading study, and had been led step by step into Entomology, mainly by the connexion of insects with plants. In the contest for Dr. Martyn's vacant chair, Henslow was successful; and thenceforward he became the leading botanist, as Kirby the leading entomologist, of his country. In saying this we do not pretend to assert that he ever rivalled a Borrer, a Watson or a Babington, in the knowledge of British species; but he acquired a comprehensive and intimate knowledge of the entire science, as proved by his 'Principles of Descriptive and Physiological Botany,' published in 1836, — a work which has scarcely an equal for clearness, simplicity and completeness, and which has served as the foundation of that shoal of introductory works which have of late years inundated the science.

But let us turn from his books to the man himself: here is a sketch from the pen of Mr. Darwin, the worthy pupil of a worthy master:— "I went to Cambridge early in the year 1828, and soon became acquainted, through some of my brother entomologists, with Professor Henslow, for all who cared for any branch of Natural History were equally encouraged by him. Nothing could be more simple, cordial and unpretending than the encouragement he afforded to all young naturalists. I soon became intimate with him, for he had a remarkable power of making the young feel completely at ease with him, though we were all awe-struck by the amount of his knowledge. Before I saw him, I heard one young man sum up his attainments by simply saying that he knew everything. When I reflect how immediately we felt at perfect ease with a man older and in every way so immensely our superior, I think it was as much owing to the transparent sincerity of his character, as to his kindness of heart; and, perhaps, even still more to a highly remarkable absence in him of all self-consciousness. One perceived at once that he never thought of his own varied knowledge or clear intellect, but solely on the subject in hand. Another charm, which must have struck every one, was that his manner to old and distinguished persons and to the youngest student was exactly the same: to all he showed the same winning courtesy. He would receive with interest the most trifling observation in any branch of Natural History; and however absurd a blunder one might make, he pointed it out so clearly and kindly, that one left him no way disheartened, but only determined to be more accurate the next time. In short, no man could be better formed to win the entire confidence of the young, and to encourage them in their pursuits." In allusion to Natural-History rambles with Henslow, Mr. Darwin says: — "These excursions have left a delightful impression on my mind. He was, on such occasions, in as good spirits as a boy, and laughed as heartily as a boy at the misadventures of those who chased the splendid swallow-tail butterflies across the broken and treacherous fens. He used to pause every now and then and lecture on some plant or other object, and something he could tell us of every insect, shell or fossil collected, for he had attended to every branch of Natural History. After our day's work we used to dine at some inn or house, and most jovial we then were. I believe all who joined these excursions will agree with me that they have left an endearing impression of delight on our minds." It was Henslow who recommended Darwin to Captain Fitzroy, of H.M.S. "Beagle," and thus we are indirectly indebted to the Professor for opening the career of one of the greatest naturalists our country has produced; but this subject we must suppress to introduce Mr. Darwin's beautiful summary of the character of his friend. "During the years when I associated so much with Professor Henslow I never once saw his temper ruffled. He never took an ill-natured view of any one's character, though very far from blind to the foibles of others. It always struck me that his mind could not be even touched by any paltry feeling of vanity, envy or jealousy. With all this equability of temper and remarkable benevolence there was no insipidity of character. A man must have been blind not to have perceived that beneath this placid exterior there was a vigorous and determined will. When principle came into play no power on earth could have turned him one hair's breadth." The following is also very pleasant and very characteristic, although scarcely scientific, a fact we must ask our readers to excuse. "I remember one trifling fact," says Mr. Darwin, "which seems to me highly characteristic of the man. In one of the bad years for the potato I asked him how his crop had fared, but after a little talk I perceived that, in fact, he knew nothing about his own potatoes, but seemed to know exactly what sort of crop there was in the garden of almost every poor man in his parish."

It has little to do with Science, but much to do with the man that Professor Henslow was what is called a liberal in politics; we have seen the biographer of Kirby vaunting the determined toryism, the excessive intolerance which in that worthy old gentleman became almost a religion; we have here a portrait of another kind, a man educated in toryism becoming an extreme liberal, a reformer, a whig, and neither afraid nor ashamed to avow his sentiments. "I would have," said Henslow, "every tory consistent, and every radical consistent, and every whig consistent, until either of them shall have become convinced that he has been in error, and then I would have him change his politics, regardless of every risk, and despising the shame which the world will heap upon him. But what I would have every man strive to possess is moral courage sufficient to declare his own opinions unhesitatingly in the face of the world, and adequate to maintain them unflinchingly against all influence whatever. A man of strict moral courage will hazard everything rather than act against his conscience." These are golden words, but we must pass on.

Professor Henslow possessed in an eminent degree that useful tact of observing only what was worthy of observation: the want of this tact leading to the eternal reiteration of an oft-told tale, induces a waste of time and labour that is rarely afterwards retrieved. How to get rid of the propensity to observe and write about the useless is one of the difficulties of Science. Henslow intuitively escaped the trammels of this error at a very early period of his scienctific career. Many instances of such writing came under Professor Henslow's notice, and his kind heart yearned towards those who made such blunders; he longed to diffuse useful information amongst such writers, in fine to teach them what to observe and how to observe. His observations on the wheat midge are written mainly with this object: he states this paper was not compiled as a scientific communication, but his biographer truthfully adds, "it is written in that masterly style which bespeaks the scientific character of the author." In this, as in almost every inquiry, he seems to have devoted himself to the service of the farmer, not omitting that fruitful source of absurd speculation, the potato disease. He traced the disease to no fabulous origin, invented no Aphis Vastator, suggested no nostrums by which it would be effectually eradicated, but he showed how two-thirds of the nutritive portions of sound potatoes existed in those which were diseased. "It seems," says Henslow, "to be a providential arrangement that as yet the really nutritive portion of the potato is very little injured, even in those tubers which become partially decayed and appear to be wholly unfit for food. The nutritious portion of the potato consists of delicate white grains of starch-like matter, which are enclosed in little cells. When the cells are broken the grains fall out, and collecting together form a beautifully white flour. It is very easy to separate this flour from the rest of the substance of the potato, and if a few persons in different villages would undertake to make the method generally known among the poor a vast amount of wholesome food may yet be secured to them, which otherwise they will suffer to perish." He describes with the utmost exactitude the process by which this flour may be obtained, the best method of storing it up for future use, and how it might be used for bread, if mixed with wheat flour in certain proportions, adding what we all now know, "it is well understood that a very high per centage of what is sold in the shops under the name of arrowroot is nothing more than this very flour of potatoes. It is also passed off in London under about a dozen different names as an important and nutritious article of diet."

Henslow carried the benevolent project of converting diseased potatoes into wholesome food wherever he went; he wrote, lectured and experimented: he demonstrated beyond all question the soundness of his views, but public prejudices were against him, and the same suicidal policy which has introduced poisoned wheat induced the farmers in his neighbourhood to neglect his advice, and sacrifice their potatoes, year after year, on the shrine of some new experiment.

But we are allowing ourselves to be carried away by the biography of this delightful man, whose reputation is destined to outlive that of many a more showy philosopher. The last subject he investigated was perhaps the one which really occupied most seriously his thoughts; we allude to the *questio vexata* of the celts: the existence of these human and preadamite instruments sorely perplexed him; his belief in revealed religion was immovable; his belief in the evidence of his senses was also unquestionable. Fain would he have believed the celts non-existent, but then they were to be seen and handled by every one. He visited Amiens and Abbeville, in the ardent hope of finding some flaw in the history of celts: unsuccessfully he visited the more recently-discovered locality at Herne Bay; and at last is believed, by his estimable son-in-law, to have "convinced himself that these implements belong to a period long antecedent to that usually attributed to man's existence on the earth." Inclination and supposed duty were pulling one way, and stern incontrovertible fact the other. He clearly saw how such a conflict must militate against our accepting the Natural History of the Bible as infallible in its details, and he nobly confesses, "I do assert that I yield to no man in firm belief that 'all Scripture is given by inspiration;' but, then, given only for the purposes specified, viz., for doctrine, for reproof, for correction, for instruction in righteousness." He thus meets the question in a manly spirit, and exhibits a far deeper love of true religion than those have done who invent cunningly-devised fables in order to prove the accordance of geological discovery with the Scripture narrative of Creation.

If an objection can be raised to any part of the scientific character of this most estimable man, it is his love of speculation: many of his views, retained through a long series of years, and constantly uppermost in his mind, never received that confirmation which converts a vague hypothesis into an available theory: such was his inquiry into the colouring of pebbles, a subject at which he worked throughout life, without attaining, and therefore without giving to the world, any available result. He held that if a defined mineral mass—fragmentary, nodular or crystalline—is imbedded under circumstances which admit of its being continuously acted upon by heat or moisture, then any colouring matters introduced or originally included in its substance can rearrange themselves into zoned laminæ, which bear a distinct relation to the surface of the mass. Also that nodular aggregations can be formed within its substance from numerous centres, many of which are seated at or near the surface of the mass. In his endeavour to establish these views, the Professor collected an infinity of pebbles; some rough, some cut, some polished. In 1836 he communicated orally his views on these to the Cambridge Philosophical Society; but, although he continued the inquiry for a quarter of a century afterwards, no results, we believe, have ever been published.

We close the book, and heartily recommend it to our readers, assuring them that it is impossible to read its pages without receiving abundant instruction and improvement: they also generates a feeling of satisfaction to know that one is a learner in the same school; and as the young painter exclaimed, on contemplating the *chef d'œuvre* of a master, "ed io anche sono pittore," so, in the contemplation of so much goodness and wisdom and modesty, do we feel inclined to say rejoicingly, "and I also am a naturalist."

J. G.

The Great Black Woodpecker in the New Forest. — Assuming Mr. W. Farren's statement (Zool. 8091) of the great black woodpecker's breeding in the New Forest to be correct (although, according to his own showing, it may be open to doubt), I cannot but regret that his business interests so far prevailed over the good feelings which generally belong to professed naturalists, as to induce him to plunder the nest and attempt the capture of the old birds. In this case the loneliness of the situation, and the fact of the birds having been hitherto undisturbed, will be a sufficient answer to the plausible excuse so often put forward for killing every *rara avis* which visits this island, namely, that some other person would have had the prize if he had not taken it. The great black woodpecker has such an extended range in Europe, and the bird has been observed, though rarely, in so many parts of this country, that its visits can hardly be due to such accidents as bring over to us straggling species from America; so that when a pair of these birds take up their quarters in one of the few suitable localities to be found with us, prepare their nest, and commence incubation, I think many readers of the 'Zoologist' will agree with me in wishing them to be protected rather than destroyed. This is the first record of the species having bred in this country, and Mr. W. Farren will now have the satisfaction of knowing that he has done his best to prevent such an occurrence again taking place. — *E. W. H. Holdsworth; 18, Osnaburgh Street, July* 4, 1862.

Toad found in digging Clay for Bricks.—In the 'Zoologist' for May, 1859 (Zool. 6537), there is a notice from me of the occurrence of live toads underneath a bed of clay. The short account there given has been adopted by Mr. Gosse, in his lately-published volume of 'The Romance of Natural History,' of which volume a review appears in 'The Friend' for March last. The reviewer is justly cautious of admitting such statements as proof "that toads can exist without food, light or air, immured for thousands of years," and, by citing an instance observed by himself, he intimates the probability of there being, in all such cases, some unobserved communication between the prison of the immured and the external air. He states that he once found a common natterjack, "enjoying himself to his heart's content at the very extremity of a long and tortuous gallery, excavated by a sand marten, in the perpendicular face of an abandoned gravel-pit on Blackheath," and he adds, "had a well been sunk from the surface, the little animal would certainly have been found fourteen feet below the surface, and the event as certainly chronicled in all our newspapers, as another instance of the longevity of toads." Now it may be inferred by the readers of the review that some such side communication most probably existed in the case of the toads noticed by me, and I therefore wish to show, by a short description of the place where they were found, that there could not be any such communication. The place is a clay-field (now nearly dug out for bricks), of about an acre in extent, of a triangular form, and nearly surrounded by water; that is, it has a canal on one side, a mill-stream on another, and a deep brook on the other side. The surface of the field before it was dug was but little above the surface of the surrounding streams, and the spot where the toads were found is many feet lower than the bottoms of the streams. There could not, therefore, be any side communication in this case; nor is it easy to see how there could be one from the surface, through a bed fourteen feet thick, of close, moist, adhesive clay, as close and moist and adhesive as a cask of butter. I have no opinion to offer on this obscure question; but it seems to me that the records of toads having been found immured, apparently for centuries, are too numerous and too well-authenticated to be lightly passed by, and that, like the various accounts of the sea serpent, they deserve the careful investigation of naturalists and physiologists.—*Thomas Clark; Halesleigh.*

[A great many notices on this subject have appeared during the past three months in the columns of the 'Field' newspaper: these communications were induced by a paragraph in the 'Worcester Herald' of March 15th, stating that a frog had been found in a coal mine imbedded in the solid coal. Of course numerous sceptics came forward to dispute the fact, and numerous advocates of the "toad-in-hole" hypothesis arranged themselves *per contra*, and charged the sceptics with "sheer ignorance and sheer prejudice;" but to a logician the admission of the advocates of the hypothesis will appear rather damaging; the Worcester miracle has appeared with these little alterations,—"the frog was in loose shale;" "it was found in the prickings;" "there were ponds on the surface, in which frogs were plentiful;" "there was nothing to prevent frogs falling into the pit if they had been so foolish as to go near enough;" "there was daily opportunity for a frog going down in the baskets used for coal, but that did not bear on the question." In support of the Worcester frog, the Lichfield frog has been again brought into the witness-box: this frog had been imbedded in solid rock for countless centuries, and at the time of the Restoration that particular cube of stone which he had selected for his domicile was hewn from its native quarry and placed on the summit of one of the spires of Lichfield Cathedral, which it is said that Cromwell's iron cannon-balls had crumbled about the ears of the human canons engaged at their devotions within. Charles II., a monarch of great piety, ordered the restoration of the spire, and restored it was, the frog-honoured stone forming the apex; but, says the historian, "a century afterwards they (the spires) were much dilapidated, and had to be repaired. One of the stones that were thrown down from the top of a spire was broken by the fall, and in the centre was found a living frog. It is very remarkable that the frog could have lived in such a position high and dry for one hundred years." With this profound observation, in which I cordially concur, I must leave the matter with my readers.—*Edward Newman.*]

The Tench found in the Moray Firth.— A beautiful specimen of the tench (*Tinca vulgaris*) was taken in the Moray Firth, near Banff, about the middle of last month (June). From whence it came, or how it had fared, is of course a mystery. The stomach was empty. The specimen is now deposited in the Banff Museum.—*Thomas Edward; Banff, July* 9, 1862.

Eurydice pulchra at Banff.—Van Bunerdun's new species of land-louse, which he calls Slabberina agata, but which, unfortunately for our continental friend, Dr. Leach found and described many years ago, under the name of Eurydice pulchra, is quite common here. Should any one be passing this way, and wish to see this little Crustacean in its native pool, I can assure him a treat, if the day be quiet and sunny and the tide out.—*Thomas Edward; Banff, July* 9, 1862.

Is Succinea Pfeifferi a Species?—Dr. Gray in p. 180 of 'Turton's British Shells' (1840), when speaking of Succinea Pfeifferi says, "It is very doubtful if this is more than a variety of that variable species" (S. putris). I have no means of knowing whether this question has been since settled or not, and for the sake of eliciting information I have put down my own observations on the subject, which all lead me to believe they are distinct. Between the North and South Camps, Aldershott, runs the Basingstoke Canal, along the sides of which, both up and down as far as I have been, the Succinea abounds; and they are all alike, small, narrow, very oblique, and, while the animal is in the shell, the colour is bluish black. About a mile from Ash the Canal is raised on an embankment nearly thirty feet above the level of the surrounding country, and the land at the foot of the bank is used as an osiery, where among the willows, &c., the yellow Iris grows luxuriantly. Last month (May) nearly every leaf in this spot had a Succinea on it, some of the largest I have ever met with, and about four times the size of their neighbours on the canal. The colour of the animal was invariably a dull white, or white with a shade of yellow. The shell much larger, the whorls more convex, the suture not so oblique, and the mouth broader in proportion; it has also a varnished appearance which is wanting in the smaller kind. I kept many of both kinds alive for a considerable time, and watched their habits. Several paired in captivity and deposited eggs, but though kept together they never united, except with their own sort. The large kind I observed rather to avoid the water, whereas the small often took to it of their own accord, and remained in for a length of time, particularly at night. I shall be glad to know what conclusion has been arrived at by any of the correspondents of the 'Zoologist' who may have given attention to the subject. I have this year lost dozens of the smaller Succinea through the ravages of a small worm, probably a Cochleoctonus. More than once while looking at my captive I have noticed an individual become restless and begin to throw its head from side to side. Shortly after a worm has made its appearance, usually by eating its way through the right side of the neck of the Succinea just above and behind the genital orifice. The poor victim seldom lived more than an hour or two after the exodus, and seemed to die in great pain, as the genital organs and "poche buccale" often protruded as if they had been squeezed out by strong convulsions.—*Bruce Hutton; Aldershott.*

Capture of Deilephila lineata at Westbourne, Sussex.—A fine female of Deilephila lineata was found at rest in the garden of a cottage in this village, on the 4th of this month (May).—*H. S. R. Matthews; Westbourne, Sussex, May* 29, 1862.

Destruction of Hymenoptera.—The present year has been a most disastrous one for these insects, particularly the Bombinatrices. The lawn near my residence is riddled with mouse holes, and during the month of May I have been amazed with the attempts of the females of Bombus subterraneus, B. terrestris, B. lapidarius and a large black bee, to commence nidification, but the ground seemed so wet a few inches deep that no lodgment was made by any one of these until the 7th of June, when a queen of B. subterraneus commenced her nest. She worked most vigorously until the 12th of June, when an inundation of rain washed the poor bee completely out of her nest. I found her a few inches from the entrance almost in a torpid state. She was taken in doors and fed with honey for one day, and I had the satisfaction of seeing her return twice to her domicile, but another torrent of rain fell on the 13th and 14th, and she never again appeared. I believe she was too weak from the cold and wet below to escape the second time. The bees alluded to were nearly every day for five weeks endeavouring to find a place sufficiently dry to form their nests. I discovered some queen wasps also commencing nidification as late as the 1st of June, from the same cause. The continued rains from the first week in March, with little intermission until the 18th of June, has no precedent during the present century, and we may hope that the law of "compensation" will give us drier weather for the next three months, although with a lower temperature. This day the temperature is ten degrees below the usual heat of June, being 56° at 7 A. M., with a cold north-west wind. I found at least a dozen hive bees fall short of their hives from cold at 8 A. M. They were quite chilled, but were revived by me.—*H. W. Newman; Hillside, Cheltenham, June* 28, 1862.

Capture of Boletobia fuliginaria in London.—While passing down one of the lanes in the City leading to Thames Street, I was somewhat startled on seeing at rest, on the side of a door-way, a male specimen of Boletobia fuliginaria. Having fortunately a small pill-box in my pocket, I managed to secure it, not, however, without some little damage to one of the under wings; in other respects is in very fine condition.—*F. O. Standish; 2, Alfred Cottages, Warner Road, Camberwell, July* 12, 1862.

Coleoptera found in company with Formica fuliginosa.—I forward you a few notes on the distribution of species of Coleoptera found in company with Formica fuliginosa, as far as they have come under my notice. I have found colonies of this ant at Weston in two places, in the one case in an old tree as usual, in the other in a bank of a garden. At Cambridge I have hitherto found only one living colony in an old willow, but the majority of trees by the river-side have been inhabited by them, and in these I find almost all the coleopterous inhabitants among the rotten wood. I will now enumerate the species which I have found in order:—

Falagria thoracica, *Curt.* Abundant round the base of the tree, Weston.

Thiasophila inquilina, *Maerk.* Rare. Apparently lives in the interior of the nest, and will only occasionally come down to the rotten wood at the base. I obtained one specimen of this from the bank above alluded to. Weston.

Haploglossa ———, *Maerk.* Of this I have taken about eight specimens, all from damp moss placed at the roots of the trees and in the nest. Weston and Cambridge.

Myrmedonia funesta, M. laticollis, M. lugens. All common in the rotten wood at the base of the trees; also very abundant in moss. Weston and Cambridge.

M. humeralis. Not rare round the nest in the bank at Weston, in moss, &c.

Homalota confusa. Common at Weston, both in the trees and in the bank. Apparently very rare in Cambridgeshire.

H. cæsula. Three specimens taken out of the rotten wood at the base of the tree. Weston.

Quedius truncicola, *Fairm.* Two specimens taken once at Weston, from moss at the roots of the tree. These present all the characters of M. Fairmaire's insect, and also agree with Mr. Janson's specimens; but I am very doubtful whether it can be maintained as a species.

Q. scitus. One specimen at Cambridge, from rotten wood at the base of the tree.

Q. chrysurus, *Kiesen.* Rare at Weston, in the rotten wood at the base of the nest; more common at Cambridge, in deserted nests, in the winter. I have also seen specimens recently taken by the Rev. H. Matthews, of Gumley. I am inclined to think this species (the Q. infuscatus of Waterhouse's 'Catalogue') is really Q. chrysurus of Kiesenwetter; it agrees with Kraatz's description, and also with the series of that insect in the British Museum sent by Dr. Kraatz. The true Q. infuscatus, *Er.*, if it indeed be distinct, has the "elytra fusco-testaceous, suture blackish;" whereas my specimens are always unicolorous. In the 'Faune Française,' moreover, the elytra of Q. infuscatus, *Er.*, are said to be longer than the thorax, which I do not observe in my series. This species is very active, and feigns death with great readiness.

Xantholinus glaber, *Nordm.* Rare at Cambridge, in old deserted nests, in the winter, with Quedius chrysurus.

Batrisus venustus, *Reich.?* I obtained ten specimens of this pretty Pselaphidan from an old nest near Cambridge. They appear to agree with specimens taken by the Rev. H. Matthews at Sherwood, but some doubt seems to exist as to their identity with the true B. venustus of Reichenbach.

Abræus globosus. Not rare at Weston, in moss previously damped, but exceedingly abundant in Cambridgeshire. I have found it throughout the country, frequently under flood-refuse, it having been washed out of the trees on the river-side. Though I have no doubt this is truly a myrmecophilous insect, it has a great partiality for Fungi. I obtained as many as sixty specimens in a piece of half-rotten Polyporus squamosus placed in a nest of the Formica, near Cambridge. I also dug them freely out of the rotten wood of old trees which had been ant-infested. Some of these were recently excluded, showing that they undergo their metamorphoses in the interior of the tree.

A. granulum, *Er.* I obtained two specimens of this rare species in company with H. globosus, near Cambridge. The sudden dilation of the tibia well characterises it.

Cryptophagus bicolor. Not uncommon at Weston.

Prionocyphon serricornis. Of this species, which is, I find, quoted by Kiesenwetter as myrmecophilous, I obtained one specimen at Weston, leisurely walking among the ants at the base of the tree.

Omias brunnipes? Very common in rotten wood at Weston and at Cambridge, in company with ants. Two or three allied species are known to frequent ants on the Continent, *e.g.*, O. pellucidus, *Schön.*

Myrmecoxinus vaporariorum. I have taken four specimens of this sweeping near ants' nests, but have not yet succeeded in discovering the economy of the species.

The number of species accidentally occurring is very great, and would take up too much room to insert here; I may mention as a few of the more remarkable—Copris lunaris, Chrysomela goettingensis, Trox scaber, Dorcus parallelipipedus, &c.; these have repeatedly occurred. Notwithstanding the length of this list, there are several more species to be found with this ant, some of which, as Myrmedonia cognata and M. limbata, have been taken in Britain; but much remains to be done, and I shall be glad if this sketch incites any of our more northern coleopterists to a careful investigation of the nest of this ant. I can assure them that, when accessible, they will find it nearly always prolific. — *G. R. Crotch; Uphill House, Weston-super-Mare, July*, 1862.

List of Coleoptera taken in the New Forest, Hants.—

Lebia cyanocephala. One, by sweeping.

Necrophorus Mortuorum, N. Vespillo, N. humator. All common in specimens in the gamekeeper's museum, *i.e.*, dead crows, &c.

Liodes humeralis. In Fungi.

Scaphidium 4-maculatum. In Fungi. I shall be glad to send specimens of this, set or unset, to any one sending box and return postage.

Cryptarchia strigata. Beneath bark.

Ips 4-guttata, I. 4-punctata. Beneath bark, chiefly beneath bark of the stumps when the tree has been felled the year previously, and there is a lot of balmy-looking sap running out.

Rhizophagus depressus, R. ferrugineus, R. bipustulatus. Beneath bark of felled trees. The last common.

Thymalus limbatus. In Fungi and beneath bark. The same remark applies to this as to Scaphidium 4-maculatum.

Bitoma crenata. Common beneath bark, chiefly of stumps when the tree has been cut some years.

Cerylon histeroides. Beneath bark.

C. ferrugineum. Rare. Beneath bark.

Sylvanus unidentatus. Rare. Beneath bark.

Mycetophagus atomarius. Last year this was common on a beech tree: not one to be seen this year.

Litargus bifasciatus. Beneath bark.

Dermestes murinus. Common in gamekeeper's museum.

Trox sabulosus. Two, flying over dung.

Athous rhombeus. One, bred from a pupa beneath bark of dead oak.

Elater sanguineus, E. sanguinolentus, E. Pomonæ. Beneath bark, and sunning themselves on dead trees.

Corymbites quercus. Beating.

Diacanthus bipustulatus. Beneath bark.

D. holosericeus. Beating.

Campylus linearis. Beneath bark.

Byturus tomentosus. Common. Beating whitethorn.

Cis villosulus. In Boleti.

Platydema violaceum. Two, beneath bark.

Helops striatus. Common. Beneath bark.

Mycetocharis bipustulata. Rare. Beneath bark of dead standing oaks.

Eryx atra. One, beneath bark of dead standing oaks.

Orchesia micans. On Boleti. Of this I have bred a good number, and shall be glad to send unset specimens to anyone who wants them.

* * *

Phlœotrya rufipes. Rare. On Fungi.

Melandrya caraboides. Common. Beneath bark, also flying.

Pyrochroa coccinea. One, on Umbelliferæ.

Tomoxia biguttata. Rare. On flowers.

Anaspis frontalis, A. Geoffroyi, A. ruficollis, A. subtestacea, A. maculata. Common. In furze, whitethorn and other bloom.

Dryops femorata. One, flying at night.

Rhynchites æquatus. By beating whitethorn.

Tomicus Laricis. Beneath bark of dead fir.

T. villosus. Beneath bark of dead oak.

Callidium variabile. Beneath bark.

Clytus mysticus. By beating whitethorn.

Leiopus nebulosus. One beneath bark.

Tetrops præusta. By beating whitethorn.

Strangalia nigra. On Umbelliferæ. Rare.

Leptura sexguttata. On Umbelliferæ, &c.

Clythra tridentata. One, by sweeping.

C. 4-punctata. One, by sweeping.

Gonioctena 10-punctata. On sallows.

Prasocuris aucta. One, beneath bark.

Calomicrus circumfusa. By sweeping low furze.

Luperus rufipes. Beating whitethorn, &c.

Tritoma bipustulata. On Fungi.

Of course I have not mentioned the host of common species one always meets with, and I have several that I am not quite certain about, so have not mentioned them.—*W. Farren ;* 10, *Rose Crescent, Cambridge, July* 9, 1862.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

July 7, 1862.—FREDERICK SMITH, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be given to the donors : —'Horæ Societatis Entomologicæ Rossicæ variis Sumonibus in Rossi ausitatis editæ,' Fasciculus primus ; presented by the Entomological Society of Russia. 'Tijdschrift voor Entomologie,' Vol. iv., Parts V. and VI. ; Vol. v., Parts I., II. and III. ; by the Entomological Society of the Netherlands. 'Memorias de la Real Academia de Ciencias de Madrid,' Tomo iii., iv. and v. 'Resumen de las Actas de la Real Academia de Ciencias de Madrid,' 1852—1859 ; by the Academy. 'Verhandlungen der Kaiserlich-Königlichen zoologisch-botanischen Gesellschaft in Wien,' Vol. xi., Parts I., II., III. and IV. 'Nachträge zu Maly's Enumeratio plantarum phanerogamicarum imperii Austriaci universi, von August Neilreich, Hausgegeben von der K. K. zoologisch-botanischen Gesellschaft in Wien ;' by the Zoological-Botanical Society of Vienna. 'Der Aufenthalt auf Manila während der Weltreise der K. K. Fregatte Novara,' von G. Ritter v. Frauenfeld ; 'Ueber die sogenannte Sägspän-See Veobachtet während der Weltreise der Novara,' von

G. Ritter v. Frauenfeld; 'Eine für Oesterreich neue Trypeta,' von G. Ritter v. Frauenfeld; 'Beitrag zur Kenntniss der Insekten-Metamorphose aus dem Jahre, 1860,' von G. Ritter v. Frauenfeld; 'Dritter Beitrag zur Fauna Dalmatiens, nebst einer Ornithologischen Notiz,' von G. Ritter v. Frauenfeld; 'Weiterer Beitrag zur Fauna Dalmaticus,' von G. Ritter v. Frauenfeld; by the Author. 'Sitzungsberichte der Königl. bayer. Akad. der Wissenschaften zu München, 1861,' ii. Heft III.; by the Academy. 'Monographia Cassididarum, auctore Carolo H. Boheman,' tom. quartus, Supplementum; by the Author. 'The Natural History of the Tineina,' Vol. vii. (Bucculatrix and Nepticula), by H. T. Stainton, assisted by Prof. Zeller, J. W. Douglas and Prof. Frey; by H. T. Stainton, Esq. 'A Treatise on some of the Insects injurious to Vegetation,' by Thaddeus William Harris, M.D., third edition; by the Boston Society of Natural History. 'Proceedings of the Royal Society,' Vol. xii. No. 49; by the Society. 'The Intellectual Observer,' Nos. 5 and 6; by Messrs. Groombridge & Sons. 'Exotic Butterflies,' Part XLIII.; by W. Wilson Saunders, Esq. 'The Zoologist' for July; by the Editor. 'The Athenæum' for May and June; by the Editor. 'The London Review' for June; by the Editor. 'The Journal of the Society of Arts' for June; by the Society.

Donations.

The President exhibited a box of galls, which had been forwarded to him from Germany, together with the makers of many of them, named in accordance with the nomenclature adopted in Hartig's work on gall insects. One of the species was Cynips Kollari, hitherto erroneously called in this country C. Lignicola. Of this species the President remarked that about three years ago it appeared in the woods near London, especially on the north side, in very large numbers; but in the second year of its appearance the tomtits had discovered that each gall contained a fine fat grub, and the result was that it was now difficult to obtain a perfect gall. Mr. Walker corroborated Mr. Smith's account both of the appearance and the approximate extermination of the species in the woods near Highgate; and Prof. Westwood expressed a hope that the fact would be made known as widely as possible, since it afforded an additional argument to the many already produced in opposition to the indiscriminate slaughter of small birds.

Prof. Westwood exhibited specimens of Acarus domesticus, *DeG.* (A. Siro, *Linn.*), found by Dr. Maddox, of Woolston, Southampton, in a nitrate of silver bath prepared for photographic purposes; and suggested that Mr. Andrew Crosse's wonderful creation of Acari might probably be explained on the hypothesis that, in that case as in this, the insects had been attracted by some of the chemical ingredients employed. He also exhibited some photographs of insects sent to him by Mr. Dale, the execution of which was so good that, notwithstanding a certain haziness, the specific distinctions of even small species were recognizable: many of the insects photographed were gummed on card, which spoiled the effect; but when they were pinned high, and had the wings flat and horizontal, the result was so successful that the Professor thought that for large insects, and especially for Neuroptera, photography might well be employed for the publication of figures; but that for smaller species it would perhaps only be useful in taking representations, from which the draftsman might afterwards make magnified drawings.

Prof. Westwood also exhibited a box of interesting objects recently contributed by Mr. Stone to the Oxford Museum: amongst them were some galls similar to those exhibited by the President; Tenthredinidæ reared from brambles; specimens of Trichiosoma and its parasite; examples of Raphidia, and the cast skin of its pupa, remarkable for the possession of mandibles unlike those of either larva or perfect insect, and which enabled it to bite its way through the cocoon; and specimens of leaves of trees, very neatly preserved, so as to show the forms of the mines of various leaf-mining Lepidopterous larvæ.

Mr. Stainton exhibited two species of Micropteryx, both bred by Mr. Wilkinson, of Scarborough; M. Salopiella from birch, and M. subpurpurella from oak. Mr. Wilkinson had unfortunately not observed the pupa, and was consequently unable to corroborate or add to the description given by Mr. Stainton at a former Meeting.

Mr. Pascoe read the following

Note on Stenidea, Muls., *and Blabinotus*, Woll.

"In the last number of our 'Transactions' (Vol. i. third series, p. 178) Mr. Wollaston, following Mr. Thomson, who has also been followed by Dr. Schaum, in his new 'Catalogue,' makes the genus Stenidea, *Muls.*, synonymous with Blabinotus of the first-named author. This is an error which I pointed out some years ago to Mr. Thomson, and I am only surprised that Mr. Wollaston did not see that a Longicorn genus, with a porrect head and securiform palpi, could have nothing to do with the Saperdides. Stenidea is very close to Pogonocherus among the Lamiidæ, where Mulsant originally placed it. Blabinotus is a Callidium form, belonging therefore to the Cerambycidæ, and was placed by Mr. Wollaston, in his 'Insecta Maderensia,' immediately after Phymatodes, which is about its correct position. I scarcely know, however, how the genus is to be distinguished from Oxypleurus, except it be by its smaller and less emarginate eyes. I may add that Mr. Janson, at my request, has kindly examined the two genera, and he is satisfied that they are perfectly distinct. The name Stenidea is stated to have been preoccupied: there is a Stenidea* certainly among the Carabidæ, and if this be the one alluded to I think the objection is invalid as they are not identical, however near they may be in sound. In any case, if there is to be a new name, that of Ataxia of Haldeman must be adopted, an American species described by that author being referable, according to Leconte, to Mulsant's Stenidea."

Papers read.

Mr. Walker read a paper entitled "Notes on Chalcidites, with Characters of undescribed Species."

The Secretary read, on behalf of the author, a paper by Mr. R. Trimen, entitled "On some new Species of South-African Butterflies collected in British Kaffraria, by W. S. M. D'Urban, Esq., during 1860–61." In this paper eleven new species of Rhopalocera were described, including one the type of a new genus, named by the author D'Urbania, and placed by him (notwithstanding its apparent resemblance to the Satyridæ) among the Lycænidæ.—*J. W. D.*

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* Dr. Schaum, in the second edition of his 'Catalogue,' writes *Stenidia;* in the first it is *Stenidea*, as Mulsant wrote it.

BOWDON AND ALTRINCHAM ENTOMOLOGICAL SOCIETY.

On Saturday, August 16, 1862, will be published the First Number of a Successor to the 'Intelligencer,' to be entitled

THE WEEKLY ENTOMOLOGIST, and to appear every Saturday after the above date. Price 2d., by post 3d.

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Those who make any discovery, or capture of a rare species, or observation of eneral interest, are requested to communicate at once with Mr. T. Blackburn.

Subscribers are respectfully requested to forward their subscriptions (3s. 3d. in Post-Office Order or stamps) for the quarter, to the same gentleman, and to consider the eceipt of the first number of the 'ENTOMOLOGIST' as an intimation that they have been eceived.

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The publication is supported by several of the leading Entomologists of the day, mong whom may be mentioned the following:—

H. T. Stainton, Esq.
Rev. J. Greene, M.A.
Rev. H. Harpur Crewe.
Rev. G. W. Brackenridge, M.A., F.L.S.
M. Guenée.
Prof. Zeller.

EDITORS—THOS. BLACKBURN, Bowdon, Cheshire; S. LEIGH, Altrincham.

As an old friend and contributor to the 'Zoologist,' perhaps the readers of that Journal will not consider me intruding if I say that I heartily concur with the suggestions put forth by Col. Newman on the subject of supplying the place of the discontinued 'Intelligencer:' no better plan could be brought about, and no one is so capable of conducting it as our esteemed friend Mr. Edward Newman: he would be "the right man in the right place."—*S. P. Saville; Dover House, Cambridge, July* 14.

PROJECTED 'INTELLIGENCERS.'

As frequent contributors and tried friends of the 'Zoologist,' I cannot refuse dmission to such communications as those of Col. Newman and Mr. Saville; but it must be clearly understood that I take no part in these or any other projects of the kind.

Many announcements of projected 'Intelligencers,' quite independently of any nentioned on this wrapper, have reached me; but not being paid for as advertisements, I have returned them. Readers will be pleased to consider that announcements of this kind are advertisements only, and must be paid for as such: the charge is sixpence per line of the ordinary type of this wrapper.—*Edward Newman.*

CONTENTS.

On the Opportunities of advancing Science enjoyed by the Mercantile Marine, *C. Collingwood, Esq., M.B., F.L.S., &c.*, 8115.

Birds.—Abstract of Mr. J. Wolley's Researches in Iceland respecting the Gare-fowl or Great Auk, *Alfred Newton, Esq., M.A., F.L.S.*, 8118. The Great Black Woodpecker in the New Forest, *E. W. H. Holdsworth, Esq., F.L.S.*, 8136.

Notices of New Books.—Memoir of the Rev. John Stevens Henslow, M.A., F.L.S., 8130.

Reptiles.—Toad found in digging Clay for Bricks, *Thomas Clark, Esq.*, 8136.

Fishes.—The Tench found in the Moray Firth, *Thomas Edward*, 8138.

Crustacea.—Eurydice pulchra at Banff, *Thomas Edward*, 8138.

Mollusks.—Is Succinea Pfeifferi a Species? *Captain Bruce Hutton*, 8138.

Insects.—Capture of Deilephila lineata at Westbourne, Sussex, *H. S. R. Matthews, Esq.*, 8139. Destruction of Hymenoptera, *Col. H. W. Newman*, 8139. Capture of Boletobia fuligiuaria in London, *F. O. Standish, Esq.*, 8139. Coleoptera found in company with Formica fuliginosa, *G. R. Crotch, Esq.*, 8139. List of Coleoptera taken in the New Forest, Hants, *W. Farren*, 8141.

Proceedings of Societies.—Entomological Society, 8142.

Nonagria (?) Bondii.— Having again taken this species, I shall have pleasure in distributing it among Entomologists as far as my stock lasts. Anyone wishing for the insect is welcome to it if he will send me a suitable box, with return postage.—*H. G. Knaggs; 3, Jeffreys Terrace, Kentish Town, N.W.*

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